THE COMMON MEDICAL INDICATIONS FOR THERAPEUTIC ABORTION*

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AMONG the fundamentals of medical ethics is the firm belief that the physician must expend every effort to preserve and prolong life, avoiding all procedures which can be considered harmful to the individual. The reaction to human experimentation as carried out in Germany during the late Nazi regime, and the present rough-going experienced by the backers of legalized euthanasia, bear witness that these beliefs are still dominant in medical thought. Over the centuries, however, the physician has always found himself faced with a dilemma; the problem of the pregnant woman afflicted with a complication which seriously increases her maternal risks. In dealing with such a problem he must follow one of two courses. Choosing the first, he can destroy embryonic or fetal life in the interest of maternal health and often, in the interest of the family group. As an alternative he can regard the embryo or fetus as of prime importance and disregard the increased risks to the mother and her importance to the family. There can be little doubt that the majority of physicians lean toward the former viewpoint.

The deliberate termination of pregnancy prior to the period of fetal viability because the mother's health is likely to be affected by the continuation of gestation, or because the fetal hazard is markedly increased, is termed therapeutic abortion. This procedure is of ancient origin and mention of it may be found in the earliest of Greek and Roman medical literature. With the decline of Roman civilization up to the end of the middle ages, reference to such operations disappeared from medical writings, allegedly under the influence of Christianity, but more likely because it was an era of intellectual hibernation. During the eighteenth century, fresh advocates for therapeutic abortion began to appear. Curi-

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ously, the indication for which this procedure was revived is no longer a valid one; that of the pregnant woman whose pelvis was so small, or so deformed as to lead to certain disaster in the delivery of a fully developed fetus. In the latter part of the nineteenth century, numerous other indications were set up, many of which still hold true, while others have been rendered almost obsolete by modern management and therapy.

The legality of therapeutic abortion is duly recognized under most codes of law.[1] That of New York State grants permission to terminate a pregnancy whose continuation may affect the health of the mother or child.[2] By the word "child," it is understood that our legal brothers imply the unborn embryo or fetus. This simple legal statement permits a very broad medical interpretation. Nothing is said in the law in regard to the necessity for consultation before carrying out this procedure. The generally required formalities attendant on the performance of such operations have been set up by the medical profession itself as evidence of the seriousness with which this procedure is viewed, and in an effort to prevent its abuse. Earnest endeavors have been made to set up standard indications for this operation, but these have been only partially successful. Because of the variation in ethical viewpoint among physicians, it is unlikely that this will ever be accomplished.[3-9] Bearing this in mind, one can hardly expect the following presentation of indications to meet with unanimous approval.[10] They represent the policy in regard to these procedures as carried out on the Gynecological Service at Bellevue Hospital.

The indications for therapeutic abortion may be classified as ovular, gynecological, and systemic. Under the ovular indications we may include those conditions which seriously increase embryonic or fetal hazards, and which may in addition threaten the mother.

The gynecological indications include mainly pathological conditions which may be influenced unfavorably should pregnancy be permitted to follow its full course. The systemic indications include two groups: one consisting of conditions specifically related to pregnancy; the other of antecedent diseases in the presence of which pregnancy is considered to be an added hazard to the prospective mother.

The Ovular Indications

Some of the ovular indications for the termination of pregnancy are

so obvious that they are no longer included in most considerations of therapeutic abortion.

Even the most fanatic believer in the importance of preserving embryonic and fetal life will not deny that surgery is the only treatment for ectopic pregnancy because it represents a major threat to the mother with only a minute possibility that a living child will result from such a gestation.

Similarly, the artificial termination of a pregnancy in which obvious degeneration of the ovum is taking place, subsequent to embryonic or fetal death, is regarded as proper therapy.

As soon as the diagnosis of hydatidiform mole can be made with certainty, termination is in order.

The serious hemorrhagic complications of pregnancy, placenta previa and premature separation, rarely give rise to serious symptoms until after the beginning of the third trimester. When they cause serious recurrent blood loss prior to this time, pregnancy perforce must be interrupted.

In addition, the following ovular indications should be recognized:

1. On rare occasions a mother is encountered whose children are uniformly afflicted with a major hereditary familial condition such as amaurotic idiocy. It is believed that further pregnancies in such women can be terminated justifiably, but only when there is a strong likelihood that a defective child will result. Using the same reasoning, major congenital anomalies occurring in infants born of previous pregnancies cannot be considered as grounds for the termination of a subsequent pregnancy, since such defectives are usually isolated instances and are unlikely to be repeated. In recent years, two new indications have arisen which merit more detailed discussion.

2. The discovery of the importance of the Rh factor in women by Levine[11] and Wiener,[12] and its capacity of sensitizing certain Rh-negative mothers during pregnancy, has given us the explanation of many instances of recurrent intrauterine fetal death. When the father is found to be Rh-positive and homozygous and the mother is Rh-negative, presenting serological evidence of sensitization and a record of recurrent fetal disaster, therapeutic abortion of subsequent pregnancies would certainly seem indicated. Fortunately, these extreme instances of erythroblastotic disease of the fetus are not common.

3. Most congenital anomalies of genetic origin are of isolated occur-

rence and are unpredictable. The observation by Gregg[13] that rubella, occurring in the mother in early pregnancy, is related to the occurrence of congenital cataract and other developmental abnormalities, made it clear that occasionally other factors are involved. Swan and his collaborators[14-17] have reported a large series of such cases and have noted the frequent association of congenital cataract with some, or all of the following defects: 1) Microcephalus 2) Deaf mutism 3) Congenital deformities of the heart 4) Microcephaly and 5) Dental defects. To these groups of defects has been given the name rubella syndrome. Since then, numerous reports have appeared in the literature. From these reports, the following observations stand out.

Rubella occurring just prior to conception does not appear to harm the embryo. On the other hand, when the disease occurs prior to the 10th or 12th week of pregnancy, the possibility that it will produce the syndrome of defects is strong, but not as certain as was believed at first. Rubella occurring in the mother after this period is unlikely to produce fetal defects since the major developmental changes, which are disturbed by the virus, have been completed. Far less convincing evidence has been presented that other blood-borne viruses, which, as a group, readily penetrate the placental barrier, may produce similar developmental defects. Included are those of mumps, measles, chicken pox and mononucleosis. The virus of poliomyelitis does not affect the embryo probably because it is not blood-borne. These clinical observations are strengthened by the experimental work of Hamburger and Habel[18] who have produced a uniform group of developmental disturbances by the inoculation of influenza virus A. A questionnaire sent out by the Academy of Pediatrics gives a partial answer to the frequency with which maternal rubella in the first trimester of pregnancy is followed by developmental disturbances. Of 199 instances, only 32 children (16 per cent) were born without defects; 100 per cent were defective when the disease occurred in the first month of pregnancy.[19] When one considers the source of this information, the possibility that the fetal risk may be exaggerated comes to mind. Three instances, one occurring in the first month, have been encountered in my own experience, in which the embryo escaped harm. Nevertheless, the possibility of embryonic damage is very real and may be conservatively estimated at about 50 per cent. It would seem that therapeutic abortion in young women under such circumstances is fully justified. On the other hand,

in the older woman in whom further pregnancies are unlikely, or dubious, it is a better policy to gamble on the embryo being unaffected. Termination of pregnancy because of the occurrence of other virus diseases in the pregnant woman, does not appear justified on the present clinical evidence. Finally, attention should be called to the fact that this knowledge is leading to abuse. The attack of rubella must be fully authenticated since instances are known in which the patient stated falsely that she had suffered from the disease. On another occasion, a four and a half months pregnancy was terminated after the patient was intentionally exposed to rubella a few weeks before the operation.

The Gynecological Indications

Pregnancy, particularly when it occurs in the woman over 30, may be complicated by a variety of pelvic neoplasms. The commonest, of course, is the uterine fibromyoma; less often, various ovarian tumors; and, infrequently, cervical cancer.

1. Fibromyomata are discovered in about 1.5 per cent of pregnant women.[20] The majority of them are small, subserous in location, and have produced no symptoms prior to the occurrence of pregnancy. Such fibroids present no additional hazards to the mother except for a statistical increase in the possibility of abortion and premature labor, a moderate chance of slight discomfort for brief periods during pregnancy because of degenerative changes, and a tendency to increased blood loss at delivery. As a rule, the vast bulk of such cases pass through gestation quite uneventfully. The woman who becomes pregnant with a uterus enlarged by fibroids to a mass which exceeds the size of four months gestation is faced with much greater hazards. Profound toxemia may result from the degeneration of large tumors as well as rupture of the capsule, while infection of the necrotic tumor may occur postpartum. Long periods of disability may take place during pregnancy. When a patient is unwilling to face this prospect, termination should be carried out by hysterectomy, preferably of the total variety. This latter group only make up a small fraction of the total number of pregnant women in whom uterine fibroids are recognized. Hence it is somewhat surprising to note that Tietze[21] reports that fibromyomata constitutes the second commonest indication for therapeutic abortion in New York City over a five year period as judged by the records of the Department of Health. One must surmise that the dangers of such tumors

to the pregnant woman have been somewhat exaggerated.

2. The ovarian tumors discovered in the pregnant woman are almost always of a benign nature—the most common being the dermoid cyst. They warrant removal because they may undergo torsion or obstruct labor. The operation is usually postponed until after the 12th week of gestation, in order to avoid disturbances of the ovum, consequent to accidental removal of the corpus luteum. Such tumors should be carefully examined by a pathologist in the operating room. Only when definite evidence of malignancy is found, should the pregnancy be terminated, a bilateral salpingo-oophorectomy and total hysterectomy being the procedure of choice. Fortunately this radical procedure is rarely necessary.

3. Cancer of the cervix in its clinically invasive phase is a rare complication of pregnancy. When discovered prior to the period of fetal viability it constitutes ample reason for termination of the pregnancy so that prompt treatment of the cervical lesion by appropriate methods may be undertaken. More recently there has been a sharp increase in number of patients suspected of microscopic forms of this neoplasm due to the increasing use of cell smears and because we are beginning to lose our fear of performing cervical biopsies in pregnant women. Unless the cervical lesion can be proved to be definitely invasive by biopsy, interruption of the pregnancy is not justifiable. The cervix should be examined carefully at intervals throughout gestation, and subjected to multiple biopsies about six weeks post partum. Appropriate treatment can then be instituted. Young[22] has reported one such case, in which a microscopic lesion, discovered during pregnancy and viewed with extreme suspicion, reverted to normal during the post partum period.

4. Previous gynecological plastic procedures can rarely be considered as the sole grounds for interruption. Should there be risk in destroying a good operative result by permitting normal labor at term, delivery can be accomplished at the present time with little risk by Cesarean section.

The Systemic Indications

A. The systemic indications directly related to pregnancy can be discussed rather briefly.

1. The most important of these is toxemia of pregnancy. The vast majority of patients exhibiting evidence of preeclampsia and its terminal

phase eclampsia, do so in the last trimester, and so do not merit consideration in this discussion. On rare occasions, however, preeclampsia appears in the middle trimester. In these cases, the likelihood of fetal disaster is so great, and the possibility of maternal damage, sometimes permanent, is so likely, should pregnancy be allowed to continue under conservative therapy, that termination is advisable and must be seriously considered. One such case has been observed at Bellevue Hospital. Following termination the patient again became pregnant a few years later, following a completely normal course.

Another problem is presented by the woman who becomes pregnant again shortly after having gone through a pregnancy complicated by severe eclampsia or preeclampsia. Many observers believe that such patients should be given every opportunity to return to normal, and suggest on general principles, that pregnancies taking place within a year of the toxemic gestation should be terminated. While no concrete evidence can be presented in support of this attitude it is believed to be fully justified.

2. Hyperemesis gravidarum has been seen far less frequently in recent years and, when encountered, treated much more successfully. The use of improved parenteral methods of feeding are largely responsible for such results. In consequence the need for therapeutic abortion has practically vanished. This indication has not been used at Bellevue Hospital for over ten years.

3. Pyelitis of pregnancy, because sulfonamides and antibiotics readily control the vast majority of cases, has almost ceased to be an indication for termination. Interruption can be considered only when the patient has proved to be difficult to control with these agents in former pregnancies.

B. The systemic indications unrelated to pregnancy consist largely of chronic disease present in the woman prior to the beginning of gestation. There are a large group of indications, on some of which there is general agreement—on others, wide disagreement.

1. *The Cardio-Vascular Indications:* (a) Rheumatic heart disease represents an indication on which there appears to be close general agreement. When such cases are classified functionally, most observers feel that those women judged to be class I or class II can be carried through pregnancy with little risk or disability. On the other hand the patient placed in class III represents a definite hazard, while those in class IV

are faced with almost certain disaster.[4] Therefore, therapeutic abortion can be justifiably advised in the latter two groups. Bunim,[23] who has conducted the cardiac clinic for pregnant women at Bellevue Hospital, suggests the following specific indications: 1) Women who have become pregnant with a history of heart failure in the past, either apart from pregnancy, or during a former pregnancy. An exception to this rule may be the woman who has been in failure as a result of acute rheumatic carditis, since this circumstance will not be likely to recur. 2) Whenever signs of congestive heart failure are present in the first trimester of pregnancy, such patients are treated for heart failure before termination is attempted. When these signs appear after the first trimester, these women can be generally carried to term, but should not be allowed to attempt another pregnancy. 3) The onset of acute rheumatic fever during pregnancy is rare, but constitutes an indication for termination. 4) Auricular fibrillation does not constitute an indication for termination, but simply indicates the advanced state of cardiac disease. If the cardiac reserve is otherwise good, the risk of pregnancy is not very great.

(b) Congenital heart disease as a complication of pregnancy can be judged in much the same manner. Women with a markedly diminished reserve, or a history of previous failure are found with distinct hazards and pregnancy should be terminated.

(c) Hypertensive heart disease rarely is a problem in the pregnant woman. When failure occurs in such a patient in a previous pregnancy, subsequent pregnancies should be terminated.

The importance of the cardiac indications should be emphasized. A recent report from the Queens County Committee on Maternal Mortality states that, in contrast to maternal deaths due to other causes those due to cardiac causes are on the rise in this area.[24] Douglas, in a recent report from the New York Lying-in Hospital[25] states that in this institution, death due to heart disease is now the most frequent cause of maternal mortality.

(d) Hypertension per se is found to be a complication in a small fraction of pregnant women. A knowledge of the previous medical background is of value in estimating its importance. In some women it has appeared independent of pregnancy, and in others appears to have arisen in a preceding pregnancy as part of the syndrome of preeclampsia, often diminishing, but not disappearing in the interval. In either

event it does not serve as a contraindication to further pregnancies since these patients have only slightly greater risks than normal women.[26] These hazards consist of a slightly more than average chance of developing preeclampsia, and an increased tendency to premature separation of the placenta. Only when hypertensive disease is complicated by congestive heart failure, electrocardiographic evidence of myocardial disease, angina pectoris, episodes of encephalopathy, and hemorrhagic or degenerative retinal changes, should therapeutic abortion be considered necessary.

(e) Varicose Veins, of the lower extremities are unfavorably influenced by pregnancy, but in the vast majority of instances their deterioration is a slow process, resulting in little incapacitation. In most instances, their surgical treatment can be postponed until a proper estimate can be made from four to six months post partum of their extent. In rare instances, the deterioration is so rapid, that after three or four pregnancies, the advent of a new gestation brings about almost complete incapacitation of the pregnant woman. Therefore, therapeutic abortion is justified in such extreme instances.

2. *The Respiratory Indications:* (a) Pulmonary tuberculosis as an indication for therapeutic abortion stands out in marked contrast to cardiac disease. Opinions are at marked variance, some maintaining that pregnancy does not influence the disease, while others feel that pregnancy is permissible only under certain circumstances. Since the Gynecological Service at Bellevue Hospital works in close coöperation with a large and active Chest Service, almost 50 per cent of the therapeutic abortions are performed because of this indication. The following statement represents the policy followed in these cases formerly by the late J. A. Muller, and at present by Amberson and Jones.[27] Their experience indicates that when tuberculosis has responded to adequate treatment, uncomplicated pregnancy can be safely conducted to spontaneous delivery at term. However, it is believed to be the part of wisdom to defer pregnancy until an arbitrary period of two years has elapsed after the last evidence of activity. When the tuberculous process has not been stabilized, interruption of the pregnancy is advisable if the patient comes under observation in the first trimester. Determination of stability rests on visualization of underlying pathological changes, and recognition of their potentialities, rather than on any rigid criteria. On the other hand, except in extreme situations, pregnancies

which have progressed into the middle trimester are allowed to continue. Here it is felt that in most instances the more extensive operative measures necessary for termination, cancel any benefits which might be derived from such procedures. The frequency with which termination is advised on the Bellevue Hospital Chest Service is related to the fact that the majority of pregnant women encountered with this complication are young, with recently acquired and very unstable pulmonary tuberculosis.

(b) Asthma in the majority of instances does not constitute a serious complication of pregnancy. Such individuals should be protected against respiratory infections and against environmental conditions affecting this disease, as they should be under any circumstances. Occasionally asthma becomes markedly aggravated during pregnancy and rarely one encounters a case in which the disease appears only during pregnancy—one such patient has been observed at Bellevue Hospital. Her asthma was very severe, causing marked respiratory embarrassment and requiring oxygen therapy. She was conducted through two pregnancies. The third was terminated by therapeutic abortion. It is believed that such terminations are justified when it is known that pregnancy greatly increases the severity of the disease.

(c) Women who have been subjected to extensive pulmonary surgery and who have subsequently become pregnant are being encountered much more frequently. Providing a period of two years has elapsed since their operation, they may be carried through pregnancy with little risk except for moderate respiratory embarrassment in the last trimester. Only when pregnancy takes place in the immediate postoperative period should termination be considered.[28]

3. *The Renal Indications:* (a) Glomerulonephritis is an indication concerning which there is also controversy. The late Henricus Stander[29] considered it to be an absolute indication for therapeutic abortion. On the other hand it is a rather rare complication and the material observed in any one institution is not great. Goldring, Chasis and Roth[30] have been impressed by several nephritic patients who have passed through normal uncomplicated pregnancies without influencing their renal disease. While it is true that these patients are more likely to develop superimposed preeclampsia, late in the second trimester or early in the third, and that their outlook for a viable infant is far more dim than in the normal individual, nevertheless, it seems likely that the dangers con-

fronting the nephritic who becomes pregnant have been exaggerated. Only when the disease is complicated by functional renal impairment, or with marked hypertension is therapeutic abortion strongly indicated.

(b) Nephrolithiasis is rarely encountered in the pregnant woman. When present, however, the potentialities for the development of uncontrollable infection of the urinary tract are so great that termination is advisable. Pregnancy may be attempted with much greater safety after surgical removal of the calculi.

4. *The Metabolic Indications:* The common metabolic disturbances complicating the course of pregnancy consist of hypo- and hyperthyroidism and of diabetes.

(a) When thyroid disturbances are present they should be treated and the pregnancy ignored. Interruption of pregnancy in the presence of hyperthyroidism may actually be harmful in that the procedure may provoke a "thyroid storm." On the other hand most surgeons operating on hyperthyroid women in the non-pregnant state advise against pregnancy for two years and recommend therapeutic abortion should pregnancy occur in the interval. This would appear to be justified.

(b) Diabetes can be so successfully managed at the present time that only rarely can its presence be considered an indication for the interruption of pregnancy. Only when pregnancy occurs soon after the onset of a severe form of the disease, and when previous experience has shown that the disease is difficult or impossible to control during pregnancy, should therapeutic abortion be considered.

5. *The Neoplastic Indications:* Pregnancy may be complicated by the fact that malignant neoplasms are antecedent or coincident to this state. In the former instance, surgical treatment has already been carried out in most cases—in the latter it must be attempted at once. The most common of these neoplasms is cancer of the breast. Among those with great experience in the treatment of these tumors there appears to be a firm conviction that the presence of pregnancy exerts a harmful influence because of the possibility of hormonic stimulation of the tumor. The evidence that this is true is not totally convincing. Nevertheless, the termination of pregnancy is frequently recommended in patients who have been subjected to surgery for breast cancer within five years, or in whom cancer of the breast is discovered during pregnancy. It is of interest to note that the fetus may also be implicated by the presence of malignancy in the mother. Recently a case has been reported of

melanotic sarcoma in an infant born of a mother suffering from the same tumor. Other similar cases are quoted in this report.[31]

6. *The Neurologic Indications:* Such indications are relatively infrequent in the pregnant woman. The commonest are probably epilepsy and multiple sclerosis.

(a) Epilepsy in the majority of instances is not unfavorably affected by the occurrence of pregnancy. As a rule the convulsive seizures can be just as readily controlled as in the non-pregnant state. Occasionally pregnancy has a markedly adverse effect, the convulsive seizures increasing greatly in number and becoming difficult or impossible to control. While a patient can be carried through one pregnancy, the severe exacerbation of the disease will recur in subsequent gestations and termination is advisable. A number of maternal deaths have occurred in such patients.

(b) Multiple sclerosis was formerly regarded as an absolute indication for termination should the patient become pregnant. Tillman,[32] however, has recently collected a large number of cases which show that when this disease is in a stage of remission, pregnancy can generally be carried to term without any evidence of adverse effect. Only when the disease is in a stage of activity is pregnancy likely to produce an acceleration of the process. Therefore, therapeutic abortion should be advised only in the latter group of cases.

7. *The Psychiatric Indications:* Minor emotional and psychic disturbances often can be observed in association with pregnancy, most frequently in the first trimester and during the puerperium. They may well be related to the major endocrine disturbances that occur during each of these periods and tend to disappear by natural adjustment. To such disturbances one may apply the terms hysteria, neurasthenia, or mild depression. They do not justify termination. Such a procedure may have to be considered with the paranoid and schizophrenic psychosis and the deep depressions with or without suicidal tendencies. The latter group are of special importance if they have been related to previous pregnancies. Even if a major psychosis is present, termination of pregnancy should not be an absolute rule, but must be decided upon after careful evaluation of the individual. It must be remembered that the termination of pregnancy is often followed by a feeling of guilt which may add materially to the psychotic problem; that the artificial termination of early pregnancy may be followed by the same profound

psychotic disturbance previously witnessed after a term delivery; that the environmental factors surrounding the development of severe depression related to one pregnancy may be absent from the next; and finally that, in a few severe psychotics, a previous record of obstetrical disaster may contribute to their mental state. In this latter group, the completion of a successful pregnancy may be of marked therapeutic value. An instance of this kind has been observed in the past year, the patient being a schizophrenic with a history of four pregnancies and no living children. The psychiatric indications for termination should therefore be utilized with great care. This opinion is strengthened by the observation of a fairly large number of psychotic women who have been carried through pregnancy quite uneventfully at Bellevue Hospital, without apparent effect on their psychosis.[33]

Finally, under the psychiatric indications, can be considered instances of pregnancy due to rape or incest. Such criminal impregnations may result in severe immediate and remote psychic consequences and therapeutic abortion may be justifiably considered. However, the circumstances surrounding such a case must be thoroughly authenticated beforehand.

This concludes an outline of the common indications for the termination of pregnancy both in the interest of the mother and of the unborn child. They are essentially medical in nature and great care has been taken to avoid mention of economic and social factors. Such factors, of course, must be taken into consideration should they exist together with a medical indication but it is impossible to justify therapeutic abortion when they alone are present. The medical indications which have been presented can be applied equally well to any strata of society. It is to be doubted whether a schedule of economic and social indications can be applied in a similar manner. Such questions must be considered to be outside the sphere of medical decision.

Therapeutic abortion, even when carried out under the most urgent indications, is an unpleasant procedure to perform. Rather than depend on contraceptive methods, which only too often prove to be a weak reed upon which to lean, sterilization should be considered in patients whose future pregnancies will be just as hazardous as one judged necessary to terminate. In addition, when a woman who suffers from one of the chronic conditions just enumerated, achieves an adequate number of children post partum sterilization merits consideration. By using such

foresight, the number of terminations will be materially reduced.

In closing a few words may be said in regard to the attitude of the physician to the pregnant woman in whom indications for therapeutic abortion exist. He can only explain to her the added risks and hazards to which she is subject due to her complication. It is the woman's privilege to accept these risks or to decline them. If she accepts, the physician cannot refuse to care for her but must do his best to carry her through her pregnancy in spite of its obvious danger.

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